

BLACKFOOT CHALLENGE

WEEKLY IRRIGATION REPORT

Friday September 14, 2018



Last week had sunny weather some days with scattered storms and minor rainfalls on other days. Next week looks like more of the same with temperatures in the 60s. Streamflows fluctuated slightly last week and are still slightly above average. Crop water use will again be about 1 inch next week for mature crops. Long-range forecasts predict average temperatures and rainfall for the rest of the growing season.

General irrigation suggestions for the entire season are presented on the last page of this report. Use these to look ahead and plan or to compare with what you're doing now. If you have questions or comment please contact Jennifer Schoonen - Blackfoot River Steward (360-6445) or Barry Dutton – Soil and Irrigation Consultant (240-7798).



WEATHER - MIX OF SUN AND SMALL STORMS

We continue with a pattern of scattered storms leaving a trace of rain on local croplands followed by sunny skies. Next week looks like more of the same with temperatures reaching into the high 60s. The 30-day forecast suggests normal temperatures and rainfall. The 90-day forecast says above average temperatures and below average rainfall. Statistically, its unlikely we will have three record snowpacks, but who can predict in a time of change?



CROP WATER USE - STILL ABOVE AVERAGE

Crop water use continued above average at about 1 inch last week. It should be similar next week with similar weather predicted. The table and chart on Page 2 summarize the entire irrigation season. This year started out with low crop water use then climbed above average with hot weather in July and August (100F+). It remains above average although not as high as last year when very hot weather persisted throughout September.



| WATER USE IN INCHES | LAST 7 DAYS | NEXT 7 DAYS¹ | SEASON TOTAL² |
|---|--------------------|--------------------------------|---------------------------------|
| HAY CROPS | 1.1 | 0.9 (0.8 – 1.1) | 23.5 |
| PASTURE | 0.9 | 0.8 (0.7 – 0.9) | 19.2 |
| SPRING GRAINS | 0.5 | 0.2 (0.1 – 0.3) | 18.2 |
| WINTER WHEAT | 0.1 | 0.1 (0.0 – 0.1) | 15.9 |
| LAWNS | 1.0 | 0.9 (0.8 – 1.1) | 22.1 |
| RAIN (Average across drainage croplands) | T | T | 6.9 |
| EFFECTIVE RAIN | 0 | 0 | 5.1 |

¹Expected water use (range if weather becomes cooler or hotter than expected)

²Beginning April 1 – note in 2010-13 we started our seasonal total on May 1 but since then we include April

BLACKFOOT 2018 GROWING SEASON WEEKLY RAINFALL & CROP WATER USE (INCHES OF WATER)

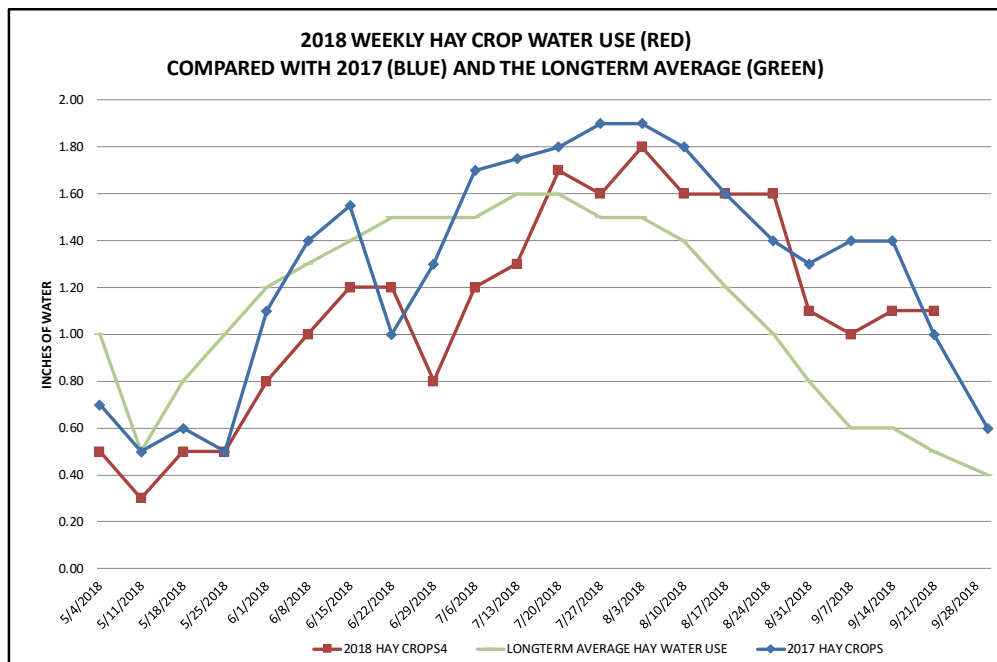
| WEEK ENDING | RAIN ¹ | 2018 WEEKLY POTENTIAL CROP WATER USE ² | | | | | | AVERAGE POTENTIAL CROP WATER USE ³ | | |
|--------------|-------------------|---|--------------|-------------------------|--------------------------|--------------|--------------|---|------------------------|-------------------------|
| | RAIN | HAY CROPS ⁴ | PASTURE | SPRING GRAINS 5-1 START | SPRING GRAINS 5-15 START | WINTER WHEAT | LAWNS | LONGTERM AVERAGE HAY WATER USE | HOT WEEK HAY WATER USE | COOL WEEK HAY WATER USE |
| APRIL | 1.50 | 0.50 | 0.40 | 0.10 | 0.10 | 0.50 | 0.50 | 1.00 | 1.50 | 0.50 |
| 5/4/2018 | 0.50 | 0.30 | 0.20 | 0.10 | 0.10 | 0.30 | 0.30 | 0.50 | 0.80 | 0.30 |
| 5/11/2018 | 0.50 | 0.50 | 0.40 | 0.10 | 0.10 | 0.50 | 0.50 | 0.80 | 1.00 | 0.50 |
| 5/18/2018 | 0.50 | 0.50 | 0.40 | 0.10 | 0.10 | 0.50 | 0.50 | 1.00 | 1.10 | 0.60 |
| 5/25/2018 | 0.25 | 0.80 | 0.70 | 0.30 | 0.10 | 0.80 | 0.80 | 1.20 | 1.30 | 0.80 |
| 6/1/2018 | 0.75 | 1.00 | 0.90 | 0.50 | 0.30 | 1.10 | 1.00 | 1.30 | 1.40 | 0.90 |
| 6/8/2018 | 0.20 | 1.20 | 1.00 | 0.80 | 0.50 | 1.30 | 1.10 | 1.40 | 1.50 | 1.00 |
| 6/15/2018 | 0.50 | 1.20 | 1.00 | 0.90 | 0.70 | 1.30 | 1.10 | 1.50 | 1.70 | 1.00 |
| 6/22/2018 | 1.25 | 0.80 | 0.70 | 0.80 | 0.60 | 1.00 | 0.80 | 1.50 | 1.90 | 1.10 |
| 6/29/2018 | 0.25 | 1.20 | 1.00 | 1.20 | 0.90 | 1.30 | 1.10 | 1.50 | 2.00 | 1.20 |
| 7/6/2018 | 0.01 | 1.30 | 1.00 | 1.50 | 1.20 | 1.50 | 1.20 | 1.60 | 2.10 | 1.30 |
| 7/13/2018 | 0.01 | 1.70 | 1.30 | 2.00 | 1.80 | 1.80 | 1.60 | 1.60 | 2.00 | 1.20 |
| 7/20/2018 | 0.01 | 1.60 | 1.30 | 1.90 | 1.90 | 1.90 | 1.50 | 1.50 | 2.00 | 1.20 |
| 7/27/2018 | 0.01 | 1.80 | 1.50 | 2.00 | 2.00 | 1.00 | 1.70 | 1.50 | 2.20 | 1.10 |
| 8/3/2018 | 0.01 | 1.60 | 1.30 | 1.70 | 1.90 | 0.50 | 1.50 | 1.40 | 1.70 | 1.00 |
| 8/10/2018 | 0.01 | 1.60 | 1.30 | 1.60 | 1.80 | 0.25 | 1.50 | 1.20 | 1.50 | 0.90 |
| 8/17/2018 | 0.01 | 1.60 | 1.30 | 1.40 | 1.60 | 0.10 | 1.50 | 1.00 | 1.30 | 0.70 |
| 8/24/2018 | 0.50 | 1.10 | 0.90 | 0.80 | 1.10 | 0.10 | 1.00 | 0.80 | 1.00 | 0.50 |
| 8/31/2018 | 0.20 | 1.00 | 0.80 | 0.25 | 0.50 | 0.10 | 0.90 | 0.60 | 0.80 | 0.40 |
| 9/7/2018 | 0.01 | 1.10 | 0.90 | 0.10 | 0.25 | 0.10 | 1.00 | 0.60 | 0.70 | 0.30 |
| 9/14/2018 | 0.01 | 1.10 | 0.90 | 0.10 | 0.10 | 0.10 | 1.00 | 0.50 | 0.70 | 0.30 |
| 9/21/2018 | | | | | | | | 0.40 | 0.60 | 0.20 |
| 9/30/2018 | | | | | | | | 0.40 | 0.60 | 0.20 |
| TOTAL | 6.99 | 23.50 | 19.20 | 18.25 | 17.65 | 16.05 | 22.10 | 24.80 | 31.40 | 17.20 |

¹ Rainfall should be reduced to account for immediate evaporation from crop and soil surfaces (0.1-April, May and Sept, 0.15-June and August, 0.2-July)

² **This years** maximum water use by healthy crops that are well-fertilized and irrigated, disease and insect-free. Will vary slightly across the drainage.

³ **Longterm average** water use for each crop each week based on long-term historic data.

⁴ Hay Crop water use drops approximately 2/3 the first week after cutting, 1/2 the second and 1/3 the third.





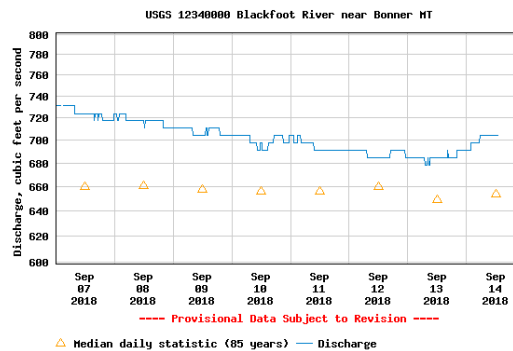
SOIL MOISTURE - WAITING FOR FALL RAINS

Soils are mostly very dry unless recently irrigated. Most folks who are still irrigating are cutting back to about what crops use each week and not trying to boost soil moisture. Crops, especially grasses slow down their water use as days shorten. They will take advantage of whatever water is available until temperatures drop.

WEEKLY TIPS

Streamflows

Blackfoot River flows fluctuated only slightly this week. The river above Bonner is flowing at about 700 CFS which is slightly above average (660 CFS). The highest level recorded for this date was about 1,380 (1899) and the lowest about 375 (1988). Flows will continue to change a little with storms but not increase until significant wet weather.



What Irrigation Topic Have We Not Talked About That You Think We Should?

We are currently revising our irrigation guide for the Blackfoot drainage and need your help!

- What do you think should be included?
- What do you want to know?
- What have we not talked about in our guide or weekly reports?
- How should we get the information to you?
- Or anything else you would like to say – send us your comments or we will assume we are perfect.

2018 will be remembered for great harvests so take a few photos, save your seed, fertilizer, soil test and bale count records for future reference. Great Job Folks!



For further information contact Jennifer Schoonen, Blackfoot Challenge Water Steward, 406-360-6445 or Barry Dutton, Professional Soil Scientist, 406-240-7798 barry@landandwaterconsulting.net

THE BLACKFOOT DRAINAGE IRRIGATION SEASON IN BRIEF

This is a summary of general activities and recommendations for the whole season (more detail in the irrigation guide).

APRIL – GET READY AND PLAN YOUR IRRIGATION STRATEGY!

- Get your irrigation system ready – perform maintenance and test system.
- Evaluate soil moisture conditions and weather predictions then plan for irrigation and drought if needed.



MAY – CHECK SOIL MOISTURE & BE READY FOR UNUSUAL HEAT OR COLD!

- Check the soil moisture content at the start of growing season and fill up the soil to its water holding capacity during early irrigations (2-4 inches).
- Watch for dry soil conditions, especially with new plantings and apply water to ensure good germination and emergence.
- Irrigate deeply at least once early in the season to promote deep root growth.
- Apply 2-5 inches of irrigation to hay and pasture crops in May depending on weather. Apply 0-2 inches to spring grains and new plantings as needed based on weather and growth. Apply extra water to fill up the soil (2-4 in).

JUNE – THIS IS THE TIME TO MAKE YOUR BIGGEST EFFORT SO POUR IT ON!

- Apply 6-8 inches of irrigation in June to hay and pasture crops and winter wheat depending on weather. Apply 5-8 inches to spring grains and new plantings as needed based on weather and growth.
- Consider irrigating deeply to fill up soil root zone and promote deep root growth.
- Be sure small grains are irrigated well during their critical periods of boot, bloom and early heading.



JULY – POUR IT ON UNTIL HARVEST AND RETURN QUICKLY

- Apply 1 - 2 ½ inches of irrigation per week in July to all crops - depending on weather.
- Cutting is a critical stress period for hay crops, especially alfalfa so irrigate deeply to fill up the root zone before cutting then get back across the field quickly after cutting. Crop water use declines when hay is cut so this is a good opportunity to fill up the soil again. Irrigate at least once after cutting. Small grains harvested for seed are usually irrigated up to the milk to soft dough stage but be sure soil moisture remains to prevent kernel shriveling. Small grains for forage are often harvested earlier when plants are less dry and seeds soft.

AUGUST- KEEP IRRIGATING SMALL GRAINS UNTIL DESIRED MATURITY, BE DROUGHT AWARE!

- Apply 1 - 2 inches of irrigation per week in August to hay and pasture crops for full production depending on weather. Irrigate new plantings as needed.
- Many folks irrigate for pasture following their one hay cutting. Irrigate according to how much pasture you seek and with consideration for other water needs in the drainage, especially in drought years.
- Reduce river withdrawals by rotating systems and reducing the amount of irrigation at one time. Stop irrigating if you can.



SEPTEMBER – APPLY AS NEEDED/AVAILABLE & GET READY FOR SPRING!

- Apply ½ - 1 ½ inches of irrigation per week in September to hay and pasture crops for full production depending on weather. Irrigate new plantings as needed. Prepare the system for winter and an early start next spring.